DOCUMENT RESUME

ED 174 026 FL 010 470

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TITLE Alternative Assessment Methods and Cognitive Styles. Lektos: Interdisciplinary Working Papers in Language Sciences, Vol. 3, No. 2.
INSTITUTION Louisville Univ., Ky. Office of Institutional Research and Analytical Studies.
PUB DATE Nov 78
NOTE 7p.
AVAILABLE FROM University of Louisville, Interdisciplinary Program in Linguistics, Room 214 Humanities, Louisville, Kentucky 40208

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Cognitive Processes; *Cognitive Style; Educational Assessment; Individual Characteristics; Language Styles; Learning; Learning Modalities; Linguistics; *Psycholinguistics; Psychological Testing; Teaching Methods; Teaching Styles; *Testing; *Test Interpretation; *Verbal Ability

ABSTRACT

A major problem in using traditional assessment procedures lies in the use of theoretical and statistical assumptions for interpreting and measuring attention, memory, and verbal abilities, and attempting to relate these constructs to academic subjects. With respect to evaluating temperaments and learning styles, the present methods of interpreting test results fail to provide reliable information. This paper reviews some of the literature on cognitive styles related to learning styles and assessment procedures. It suggests relating the constructs, concerning such things as attention, memory, and verbal ability, to the area of language and linguistics. Research has shown that measuring psychological constructs through the use of verbal abilities is a reliable method of obtaining meaningful results. It is suggested therefore that by qualitatively analyzing an individual's language, information regarding his or her cognitive style or method of categorization could be obtained. If it is true that all individuals have a unique linguistic structure, certain generalized constructs associated with certain structures might be derived through linguistic analysis. (Author/AMH)

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ALTERNATIVE ASSESSMENT METHODS AND COGNITIVE STYLES

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Much attention has been centered around the negative aspects of the psychological and educational assessments of children. Moratoriums on intelligence testing, and the development of special educational curriculums, such as bilingual and English as a Second Language programs, have all reflected the active concern for attempting to equalize a child's chances of an educational experience. The impact of the testing controversy appears to have also affected the fields of psychology and education, requiring them to take a second look at their methods on individual assessments and to re-evaluate the validity of their traditional procedures.

Referrals for psychological evaluations usually focus on the issues surrounding intellectual potential, learning deficits, and establishing a better understanding of the child's inconsistant performance in school. By comparing the child's test performance with normative data, the examiner can better describe the child's relative strengths and weaknesses and determine an estimate of his intellectual potential. The basic underlying assumption for using psychometric, norm-based tests acclaims that there would be no significant changes in a person's test performance, even when re-examined at any point in his life time. Using this statistically based rationale, justification is given for such tests to be valid and reliable. However, the assessment evaluation is not limited to certain test results. The examiner bases a large portion of his evaluation by subjectively interpreting the child's qualitative responses to test items, and evaluating his behavior during the test.

The major problem in using traditional assessment procedures lies in the use of theoretical and statistical assumptions for interpreting and measuring attention, memory, and verbal abilities, and attempting to relate these constructs with academic subjects such as math, writing, reading, etc. With respect to evaluating temperaments and learning styles, the present methods of interpreting test results fail to provide reliable information. Thus the examiner is forced to resort to his intuitive judgment for predicting the child's learning behavior in the classroom.

An increasingly popular alternative has been the emphasis of evaluating intellectual and personality variables in terms of intellectual factors and cognitive styles. Operationalizing Guilford's three dimensional figure representing a theoretical model of intelligence appears to be a promising alternative toward investigating basic skills necessary for learning. Mary Meeker (1969) and Ruth Ekstrom (1973) have determined a method to operationalize and develop test scales for up to 50 of Guilford's 120 intelligence factors.

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Regarding cognitive styles several investigators have found different dimensions that can differentiate several learning methods. Using the Apparent Movement Test, Klien (1951) found three different dimensions which were referred to as Dimensions of the Ego System. The dimension of Levelers and Sharpeners tended to distinguish persons who were extroverted versus introverted. Levelers preferred to ignore, deny, or suppress differences and tended to be more introverted. Sharpeners were found to be better able to accept changes, find competition congenial, be energetic, and have high needs for attainment. The Form-Bound Form-Labile Dimension differentiated the Form-Bound person to be more externally controlled, rigid, compulsive, and have stereotyped thinking patterns, while the Form-Labile person was more internally controlled, able to disregard stereotyping, and more flexible. The third dimension, Physiognomic versus Literal, indicated the Physionomic person to be more creative, empathic and imaginative, whereas, the Literal organizer tended to prefer the geometric, technical areas and were insensitive and less empathic.

Witkin (1962) proposed the concept of perceptual differentiation defining the Field-Independent person as perceiving parts of a field as discrete and more differentiated, and the Field-Dependent person as less differentiated tending to fuse differences, and view things in a global manner. Field-Dependent persons appear to have difficulty extracting critical elements from a context and reconstructing the elements so an item could be used in a different set of circumstances. In terms of self-identity, the Field Dependent person tended to have greater reliance on external sources of information for self-differentiation. On the other hand, the Field-Independent person has a greater sense of separate identity and a more developed inner sense of reference.

According to Witkin (1975) "Studies have shown that massive repression which involves an indiscriminative blotting out of experiences and ... represents a relatively non-specific or less differentiated way of functioning, tends to be used by relatively field-dependent persons as a character defense, whereas, intellectualization, a defense which may be taken to reflect greater differentiation, is more commonly used by relatively field-independent persons" (p. 10).

Although there are no studies supporting the use of the Field-Dependent Independent dimension in predicting pathology, it seems that the set of behaviors associated with Field-Dependence has a negative or "less than" quality when compared with the Field-Independent dimension. Upon attempting to replicate Klien's dimension, Witkin (1975b) found that all three dimensions could not be produced independently and such attempts only provided evidence for the reliability of the Field-Dependent Independent dimension.

Several investigators reported the Field-Dependent Independent dimension to be associated with certain sociological factors which facilitate the development of cognitive styles and questioned the negative characteristics associated with Field-Dependence. In agri-

cultural and pastoral societies Barry, Child, and Bacon (1959) and Witkin (1975) suggest that such groups have more Field-Dependent persons. It seems that such societies emphasize compliance and obedience, whereas, societies having more Field-Independent persons tended to be "low food accumulators", and emphasize assertion, self-reliance, and achievement.

Cross cultural studies comparing the cognitive styles of their members suggested certain cognitive styles are typical for some societies. Persons from the Middle-Eastern areas, Jewish Orthodox families, Mexican, and Mexican-American families tended to be more Field-Dependent and expect to be more conforming and value obedience within an authoritarian structure. White protestants, Americans including Eskimos, and persons of Western origin tended to be more Field-Independent, and expected to be autonomous, initiative and less conforming. (Witkin, 1975). One could conclude that child rearing practices and the expectancy values of the culture seem to influence a person's cognitive style. The Field-Dependent Independent dimension tends to measure social versus impersonal orientations with the Field-Dependent person being more socially oriented and the Field-Independent person being more impersonal.

In light of this interpretation the Educational Testing Service is supporting efforts to use Witkin's dimension in their college exams for career guidance purposes. Field-Dependent persons appear to function well in an occupation where there is much social contact, e.g.,social work, clinical psychology, and law. The Field-Independent person prefers those occupations that have less interpersonal contact, e.g.,stenographer and science researcher.

Other cognitive style dimensions were developed by Kagan, Moss, and Sigel (1963) suggesting three specific stylistic modes of categorization, the descriptive-analytical, relational-contextual, and categorical-inferential. A descriptive-analytical response reflects the tendency to classify items on the basis of objective, observable, and discrete characteristics that are part of the total stimulus situation, e.g.,associating elephants with a Cocker Spaniel because they are animals and have large ears, and something like toe-nails. The relational-contextual system uses themes or story lines which integrate the various items together in a relational manner, e.g., pairing a house with a maid because the maid has the responsibility to clean the house. The third method, inferential-categorical system, uses possible inferences that could be made about the objects grouped, e.g.,associating tigers and bobcats as aggressive and hostile beings. By using the Sigel Conceptual Style Test these systems appeared to be reliably evident suggesting stable individual preferences in the mode of perceptual organization and conceptual categorization of the external environment, or more simply, different cognitive styles.

Kagen, et al., (1963) also found individual differences in the speed with which a person responds to a task of high response uncer-

tainty and the number of errors made in the response. This is what he termed conceptual tempo. Rapid responders who make many errors were referred to as impulsive. Slower responders who tended to make fewer errors were named reflective. Children who are reflective were found to be more analytical and made fewer errors in reading.

Several studies investigated the effects of requiring impulsive children to wait before responding and their results demonstrated fewer errors with this procedure. Heider (1971) in discussing these studies concluded that "One motivational factor underlying individual differences in conceptual tempo is anxiety over the accuracy of intellectual performance" (pp. 1276-77). The effects of different cognitive styles and conceptual tempos appears to have a powerful effect in determining learning styles and methods for coping with stress particularly in school.

Within a classroom environment it may well be that the teacher's method of categorization, conceptual tempo, and cognitive style may radically differ from other students. Hence, the teacher's teaching methods would be compatible with his own styles and techniques since these approaches have been personally successful. Unless the teacher is aware of the student's cognitive style and processing methods, then there exists the potential for conflict resulting in alienating the student from the teacher and facilitating disinterest in certain academic subject areas.

Sigel and Coop (1974) presented a good illustration of how different cognitive styles may function in the classroom.

> Imagine for a moment that you are sitting in the back of Mrs. Fowler's classroom at Midview School, observing her life science class. She is presenting a lecture on the bone structure of the human body to a class of sixth grade students. Mrs. Fowler has a beautifully illustrated chart showing the underlying bone structure. As she points to the section of the chart that shows the connective tissue between two bones, you begin to wonder what it would be like if you could somehow see inside the thinking processes of each student in this classroom as he sits listening (or pretending to listen) to the teacher. Suppose, for a moment, that we were given the ability to see what student's looking at or thinking about at this instant. We might find that Mary Cairns is focusing on two little knobs that project from the tips of each of the bones and remind her of spurs on cowboy boots. Stanley Robinson might be trying to relate the graphic artist's use of various colors and shading to give the chart an illustration of depth. Sheila Smith is having some difficulty separating the tissue that the teacher is pointing out from some

> of the surrounding muscle fibers that are also included in the drawing. She wishes that the artist had made a clearer distinction between the various tissues and the surrounding muscle fibers. William Baker quickly glances at the chart, but does not immediately see what the teacher is trying to point out and turns his attention to the aquarium on the other side of the room.
>
> Each of the students in this class is being presented with the same stimulus materials by their teacher. All the students have the capacity of hearing what the teacher is saying and seeing the area of the chart that Mrs. Fowler is pointing to. Yet each student is attending to different aspects of the stimulus situation, and each is categorizing these different perceptions in a manner that is different from the other students in this class. Although different mental activities are going on within each of the students, the teacher is probably assuming that each student is looking at the same section of the chart and that each is categorizing and, in fact, learning the information she is presenting to them in a similar manner. She proceeds with her lecture on that assumption-namely, that all the students have, in fact, processed the same information and that the information they have processed is the information she intends them to process. (pp. 250-51)

An interesting idea would be to relate the constructs mentioned with the area of language and linguistics. It is well founded that measuring psychological constructs through the use of verbal abilities is the most reliable method of obtaining meaningful results. Perhaps by qualitatively analyzing an individual's language, information regarding his cognitive style or method of categorization could be obtained through the qualitative language assessment. By combining the perceptual tests presently used like the Rod and Frame Test or the Apparent Movement Test a more reliable and valid index describing the individual's cognitive style could be derived with greater accuracy.

Assuming Chomsky's position that all individuals have a unique and idiosyncratic linguistic structure, certain generalized constructs associated with certain structures could probably be derived through linguistic analysis. Perhaps such analysis may find consistant trends in the linguistic structure of the Field-Dependent, reflective persons as compared with other combinations. Developing an index of linguistic complexity may be found to be associated with the construct cognitive complexity. Several studies have found the psychological construct cognitive complexity to be a strong indicator of academic success and

highly associated with creativity and certain career orientations (Bodden, 1970; Bodden & Klien, 1972; 1973).

In light of this presentation, the field of alternative assessment methods appears to be challenging and exciting for the imaginative researcher. Accepting our present procedures without modification would mean continuing the descrepancies and misconceptions which have provided unfortunate circumstances for many types of people. It seems more unfortunate that crystallization of these ideas and the hopes for improvement appears to be contingent upon the humility of different professionals to work in an interdisciplinary manner.

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